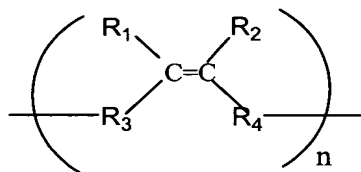


**WHAT IS CLAIMED IS:**

1. A method of making a weak cation exchange medium comprising contacting a solution of a functional organic polymer having carbon to carbon double bond unsaturation and having weak cationic exchange functional moieties or precursors thereof in a solvent with at least one substrate having an organic polymer surface, evaporating said solvent and breaking said double bond under conditions to cause said functional organic polymer to covalently bond to said substrate surface and to cross-link to form a cross-linked functional polymer layer covalently bound to the substrate surface.
2. The method of Claim 1 in which said substrate surface is porous and said functional polymer solution flows into the pores of said substrate surface prior to a solvent evaporation and breaking of said double bond.
3. The method of Claim 2 further comprising a plurality of said substrates in the form of particles suitable for use as a weak cation exchange chromatographic medium.
4. The method of Claim 1 further comprising packing said particles in a chromatographic column.
5. The method of Claim 1 in which said weak cation exchange groups comprise carboxylic acid moieties.
6. The method of Claim 1 in which said weak cationic exchange moieties comprise succinic acid.
7. The method of Claim 1 in which said functional organic polymer comprises a copolymer of butadiene and a weak acid cation exchange moiety or precursor thereof.
8. The method of Claim 1 where said functionalize organic polymer comprises



wherein R<sub>1</sub> and R<sub>2</sub> groups are independently protons and/or alkyl, alkenyl, allyl, cycloalkyl, cycloalkenyl, aromatic, heteroaromatic, cyano or halogen substituents;

R<sub>3</sub> and R<sub>4</sub> groups are independently alkyl, alkenyl, allyl, cycloalkyl, cycloalkenyl, aromatic or heteroaromatic substituents;

R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> groups optionally including other double bonds, epoxy rings, amino groups, alkyl halides, hydroxy groups, oxygen, nitrogen, sulfur and phosphorous heteroatoms substitutions;

at least one of the R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> groups comprising a weak cation functional moiety, or precursor thereof.

9. The method of Claim 3 in which said substrate surface comprises a cross-linked polymer having residual unsaturation and said covalent bonding with said substrate surface is through said residual unsaturation.
10. The method of Claim 9 in which said plurality of substrates comprise particles formed of said cross-linked polymer.
11. The method of Claim 8 in which said weak cation functional group comprises carboxylic acid.
12. A coated weak cation-exchange medium made by the method of Claim 1.
13. A coated weak cation-exchange medium made by the method of Claim 3.
14. A coated weak cation-exchange medium made by the method of Claim 6.
15. A coated weak cation-exchange medium made by the method of Claim 8.

16. A coated weak cation-exchange medium made by the method of Claim 9.
17. A coated weak cation-exchange medium comprising a functional organic polymer having carboxylic acid weak cation exchange functional moieties or precursors thereof covalently bound in a cross-linked layer to an organic polymer surface of a substrate.
18. The medium of Claim 17 in which said medium is in the form of chromatography packing.
19. The medium of Claim 18 in which said functional organic polymer comprises a copolymer of a diene and a carboxylic acid or precursor thereof.
20. The medium of Claim 18 in which said substrate surface comprises a cross-linked polymer having residual carbon to carbon unsaturation and said covalent bonding with said substrate surface is through said residual unsaturation.
21. A method of chromatographical separating a liquid sample solution comprising weak acids comprising passing said liquid sample solution through the medium of Claim 17.